EUROPEAN MULTIDISCIPLINARY JOURNAL OF MODERN SCIENCE
https://emjms.academicjournal.io/index.php/ Volume: 7

Fields of Application of Wood Species of Different Types in Modern Construction

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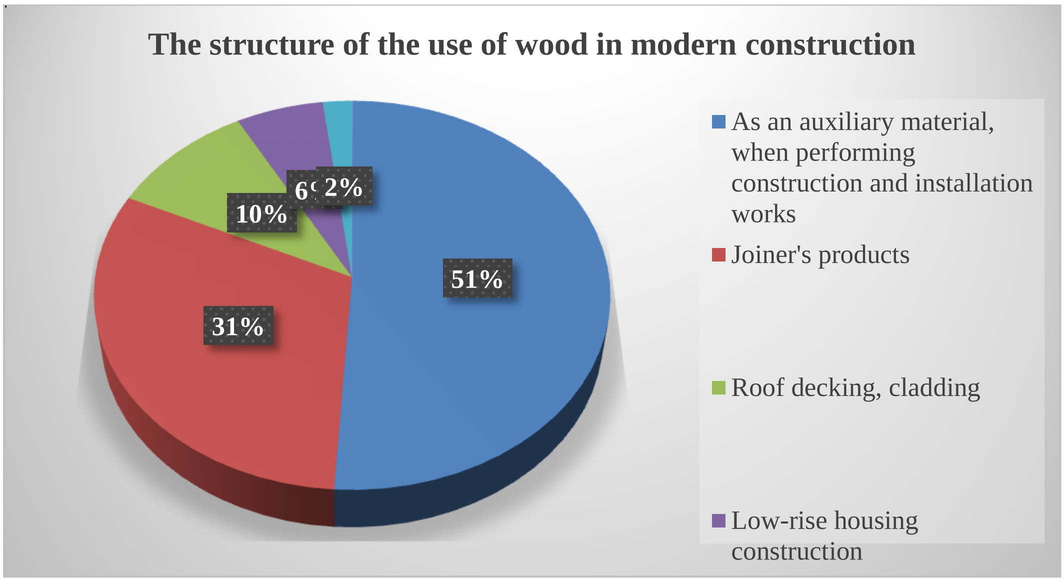
Abstract: The features of the widespread distribution of wood earlier are described. The structure of wood use at the present stage is presented. The areas of application of wooden structures in construction are determined.

Keywords: Wooden structures, scope of wood, unique buildings and structures, glued structures, modern construction.

Wood, as a building material, has a long history, because even in primitive times, people began to use wood to build their homes or other buildings. Especially massive construction with the use of wood as the main material was distinguished by house building in Russia, which is due to the spread and ease of processing of the material. But in addition, the physical and mechanical properties of wood contributed to the wide distribution, for example: pine has a density of 0.52 t / m3, but at the same time it has a compression resistance index comparable to class B15 concrete (density 2.5 t / m3), with a relatively small weight .

The "flourishing" of the use of wood fell on the 20th century, more than 20 large woodworking enterprises operated on the territory of the Uzbekistan SSR, which also produced glued structures, which were distinguished by ease of installation, manufacture, uniformity and relatively low weight.

At present, wood is mostly used as an auxiliary material in construction and installation work. The structure of wood use is shown in Figure 1.



At the same time, scientists calculated that when using wooden structures in the coverings of large-span buildings, it is possible to reduce labor costs by 20%. It is also worth considering a significant reduction in the weight of the coating structures by 4-5 times.

Low-rise wooden buildings were and still are popular, but most often this is due to the architectural appearance of the structure, and not to the required technical characteristics.

The Ministry of Industry and Trade of Russia has set a goal for itself today – to expand the use of wood as the main structural material.

The areas of application in which the rational use of wooden structures can be divided into six groups:

1) Buildings or structures with a span of 18 to 100 meters (pavilions, sports centers, auditoriums, etc.).
2) Buildings with aggressive chemical environments.
3) Industrial (industrial, agricultural).
4) Unheated buildings.
5) Prefabricated buildings.
6) Engineering structures.

In modern construction, beams glued from planks laid flat (plank-glued beams), beams with plank belts and a plywood wall (glued beams) are used. Board-glued beams are made of constant and variable cross-section with a span from 10 to 30 - 40m. Curved beams are also used. Of the glued plywood beams, beams with a wavy plywood wall turned out to be the most industrial.

Modern enclosing structures are primarily factory–made glued panels with one or two sheaths of waterproof plywood. They are used for walls and coatings, industrial and prefabricated residential buildings.

The main advantage of glued wooden structures is the possibility, by gluing lumber along the length, as well as in height and width of the cross section, the manufacture of structural elements with cross–sectional dimensions of almost any shape and size.

Both mass-produced structures for buildings with a span from 12.0 to 45.0 m and structures of unique structures with spans from 60.0 to 150.0 m are made of glued wood.

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